

ANNUAL REPORT

OF THE

» **PUBLIC HEALTH** »

OF THE

NEWTON ABBOT

(RURAL), and

NEWTON ABBOT AND DAWLISH

(URBAN)

- - COMBINED - -

Sanitary Districts

For 1898.

BY

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PLACES. 1898.	Birth-rate	Annual Death-rate per 1,000 of population.									Deaths under one year to every 1000 births
		Total Death-rate	From seven Zymotics	Small-pox	Measles	Whooping Cough	Scarlatina	Diphtheria	Continued Fever	Diarrhoea	
England and Wales	29.4	17.6	2.2	.01	.41	.31	.11	.24	.18	.96	161
Newton, rural	23.7	14.9	1.13	..	.09	.59	..	.045	.36	.045	126
Newton, urban	23.0	16.5	3.0	..	1.3	.1	..	..	.9	.7	163
Dawlish.....	23.0	16.5	.4	..	..	..	..	..	..	.4	108

ANNUAL REPORT

1898.

NEWTON ABBOT (RURAL.)

The number of deaths registered in this district was 331, of which 165 were in males and 166 in females, equal to annual rate per 1000 of population of 14·9, which although below the decennial average is '3 in excess of the previous year. Considering the great fatality from whooping cough (not equalled since 1890 when the death-rate was 17·2), the presence of epidemic measles in sundry places, an exceptional loss from fever, and a great recrudescence of influenza, the rate may be looked on as very satisfactory, affording a marked contrast to the 16, 17, 18, and even more that prevailed in the decade from 1880 to 1890. Weighing the adverse circumstances of the year and the figures shewn for six years in the table on page 3, the inference that the mortality has sunk permanently below 15 per 1000 seems justifiable.

Under the age of one year there were 76 deaths ; between 1 and 5 years, 28 ; between 5 and 15 years, 15 ; between 15 and 25 years, 18 ; between 25 and 35 years, 15 ; between 35 and 45 years, 13 ; between 45 and 55 years, 12 ; between 55 and 65 years, 29 ; and over the latter age, 135.

In the four quarters there were consecutively 114, 71, 65 and 81 deaths.

The infantile death-rate, the deaths under one year to every 1000 births was 126, a rather high figure, due chiefly, to the prevalence of whooping cough, which is a very fatal disease in the first year or two of life.

The diminution of population arises from Ashburton being made into an urban district. This did not happen until

Death-rate, &c., in each parish.												
PARISHES.	7 Ordinary Zymotics					Influenza	Consumption	Other Tubercular Diseases	Apoplexy	Cancer	Infantile Inanition.	Total Death-rate per 1000.
	Whooping Cough	Scarlatina	Measles	Diphtheria	Diarrhoea								Continued Fevers.
Abbotskerswell ...	...	...	...	...	...	...	...	...	...	...	...	7.0
Bickington.....	1	...	...	...	...	...	...	...	...	...	...	13.0
Bishopsteignton ...	4	...	...	...	...	2	4	1	1	1	...	25.9
Bovey Tracey	1	...	...	1	...	...	3	1	1	2	1	15.0
Buckland .....	...	...	...	...	...	...	...	...	...	...	...	14.1
Broadhempstone ...	...	...	...	...	...	...	...	...	...	1	...	11.4
Coffinswell.....	...	...	...	...	...	...	...	...	...	...	...	5.0
Coombe, Haecombe	...	...	...	...	...	...	...	...	...	...	...	1.8
Chudleigh .....	...	...	...	...	...	...	...	4	2	2	1	11.0
Denbury, Torbrian	...	...	...	...	...	...	1	...	...	...	...	9.7
Dawlish .....	...	...	...	...	...	...	1	1	1	1	...	9.8
Ogwell .....	...	...	...	...	...	...	2	1	...	...	...	9.7
Highweek	1	...	1	...	...	5	3	1	1	1	...	15.7
Hennock.....	...	...	...	...	...	...	1	1	...	...	...	11.7
Ilsington	1	...	...	...	...	...	1	1	...	2	...	19.0
Ipplepen .....	...	...	...	...	1	...	1	...	3	...	...	18.2
Ideford .....	...	...	...	...	...	...	1	...	...	1	...	14.0
Kingskerswell	1	...	...	...	...	...	5	2	3	2	...	23.3
Kingsteignton	1	...	...	...	...	1	1	2	1	...	2	14.2
Lustleigh .....	...	...	...	...	...	...	...	...	...	...	...	7.2
Moreton .....	...	...	...	...	...	...	2	1	1	1	1	18.1
Manaton .....	...	...	...	...	...	...	...	...	...	...	...	3.1
North Bovey.....	...	...	...	...	...	...	1	1	...	1	...	24.0
Stoke .....	...	...	...	...	...	...	...	...	...	...	1	19.6
Teigngrace .....	...	...	...	...	...	...	...	...	...	...	...	nil
Trusham .....	...	...	...	...	...	...	...	...	...	...	...	6.2
Widdicombe	1	...	1	...	...	...	1	...	...	...	...	10.8
Woodland	2	...	...	...	...	...	...	...	...	...	...	27.2
	13	...	2	1	1	8	19	14	14	14	15	6
												...

Violent deaths are excluded in the above rates.

No deaths due to Small-pox or Scarlatina.

Table of Deaths occurring during the Year 1898, in the several registration Districts of the Newton Abbot Rural Council, classified according to Diseases and Ages, and shewing the Death-rate, Birth-rate, and Population of each Locality.

SUB-REGISTRATION DISTRICTS.	Population.	BIRTHS.		DEATHS.							MORTALITY FROM SUBJOINED CAUSES.													
		Registered.	Birth-rate per 1,000 annually.	At all Ages.	Death-rate per 1,000 annually.	Under 1 year.	1 and under 5.	60 and upwards.	Under 1 Year to every 1000 births	Small-pox.	Measles.	Scarlatina.	Diphtheria.	Whooping Cough.	Typhus.	Continued Fevers.			Diarrhœa.	Phthisis.	Bronchitis, Pleurisy, Pneumonia.	Heart Diseases.	Injuries.	Other Diseases.
Newton (Rural)	7,400	173	23.5	101	13.7	23	9	41	133	...	1	...	...	2	...	6	...	...	1	5	14	10	8	54
Chudleigh ...	6,748	165	24.5	102	15.1	15	9	49	91	...	...	...	1	6	...	2	...	...	...	1	22	11	2	56
Ashburton (Rural)	2,754	67	24.3	43	15.6	9	3	18	132	...	1	...	...	4	...	...	...	...	...	2	9	6	1	20
Moretonhampstead	2,692	67	25.8	43	16.0	10	3	21	149	...	...	...	...	1	...	...	...	...	...	5	6	5	2	24
Sea-border ...	2,600	52	20.0	42	16.2	9	4	19	173	...	...	...	...	...	...	...	...	...	...	1	6	4	1	30
TOTALS, 1898.....	22,194	524	23.7	331	14.9	66	28	148	126	...	2	...	1	13	...	8	...	...	1	14	57	36	14	184
" 1897.....	24,850	624	25.1	364	14.6	57	24	174	91	...	...	...	1	1	...	2	...	...	7	29	65	43	11	205
" 1896.....	24,792	608	24.6	305	12.3	50	26	132	82	...	1	3	2	4	...	1	...	...	1	21	39	36	18	179
" 1895.....	24,737	591	23.9	353	14.3	69	27	161	117	...	14	1	...	4	...	3	...	1	1	16	70	30	15	198
" 1894.....	24,681	563	22.8	378	15.3	64	27	159	114	...	...	...	1	11	...	5	...	...	3	28	75	44	17	194
" 1893.....	26,626	652	24.4	391	14.7	70	32	177	107	...	...	2	3	7	...	2	...	...	4	37	61	40	13	222

Midsummer, yet to avoid the complexity of broken periods in the returns, the whole of the deaths for that place are eliminated from this report and handed over to my successor there.

The striking meteorological characteristic of the year was that July was not as usual the hottest month, but was followed by a hotter August, and a still hotter September. The latter had, I believe, a greater average temperature than any corresponding month for 36 years. The importance of this in the causation of autumnal fevers is not to be lost sight of : it encouraged prolonged river bathing also.

The births of 269 boys and 255 girls give the low rate of 23·7, so the increase of the previous year has not been maintained. The natural gain of population, the excess of births over deaths, was therefore 193, subject to a deduction of 14 for the mortality in the union house referable to the rural parishes.

The chief causes of death with the local distribution are given in the tables. A highly gratifying figure is that a record has been attained under the heading of phthisis, commonly known as consumption, a tubercular disease, than which there is no better gauge of the amelioration of the conditions under which the masses of the people live : no year is barren that establishes a record in anything, and one in this disease is perhaps better than in any other. Influenza has markedly increased, and its destructiveness exceeded that of any year except 1892, when the original outbreak occurred : the deaths from it were 19 in number in the year under review, and 37 in that last mentioned. It is to be observed, however, that in connection with both phthisis and influenza a somewhat smaller population is being dealt with. Newton sub-registration district shews the lowest death-rate, the sea-coast parishes the highest, a rebound from the low figure of 1897. The latter has also the lowest birth-rate, again a rebound from the previous year ; Moreton the highest.

In view of the great public interest now taken in the subject of tubercle and its best known manifestation, phthisis or consumption, I append the actual number of deaths yearly, that have been registered from the latter in this district from 1874 to 1898. The figures speak for themselves as to the great improvement that has been effected. Sanitation no doubt can claim the credit in a high degree, but abundant employment and better food are also important contributing factors : 49, 32, 43, 35, 49, 48, 27, 41, 28, 42, 36, 42, 30, 38, 34, 35, 31, 36, 19, 37, 28, 16, 21, 29, 14. The age at death too has increased.

ZYMOTIC DISEASES. Twenty-five deaths were assigned to the 7 ordinary diseases of this group, viz., whooping cough 13, typhoid fever 8, measles 2, and one each to diphtheria and diarrhœa, equal to a rate of 1·13. In the previous year there were only 11 fatalities, yielding a rate of ·44. Besides these there were certified 19 from influenza, and one each from septicœmia, and fibrinous laryngitis, the latter having a suspicious relationship to diphtheria. The whooping cough has not been surpassed since 1890, and the influenza not since 1892 ; see ante. The deaths from the latter were restricted to the towns and larger villages, and not one was in a purely agricultural parish : amongst the towns, elevated Moreton alone escaped loss from this cause. The notifications were 8 scarlatina, 7 diphtheria, 62 typhoid, and 10 erysipelas.

WHOOPING COUGH AND MEASLES. The former has prevailed pretty extensively almost everywhere, but it caused no fatality in either Chudleigh or Moreton. It is perennially present in some degree, and affects chiefly very young children but in the direct sense is scarcely amenable to sanitary control. The little parish of Woodland with a population of 184 lost two children from it, and thus had its death-rate nearly doubled. The same remarks apply almost equally to measles : the 2 deaths attributed to it were in Widdicombe and Highweek : it was also epidemic in Bishopsteignton, Blackpool, &c.

SCARLATINA. Singularly few cases of this have come under observation, and for the second year in succession no deaths are due to it. It is growing progressively milder in character. I find an embargo of seven weeks much more effective in stopping diffusion than six weeks : indeed I think I may say that this prolongation of a week has almost arrested the later cases as formerly experienced.

ERYSIPELAS. Of this 10 cases were reported : they were without special interest, and need no remark.

DIPHTHERIA. This disease has lingered in Lustleigh, and the adjoining part of Bovey. Four cases were notified in the former parish, one in the latter, and one in North Bovey. Its association with the school was marked, disappearing on its closure and recrudescent on its opening. The last case there was noted on July 1st, but even in October "patchy sore throats" came under medical observation, so the danger can scarcely be said to have ended. Remarkable carelessness is sometimes shewn, and I have reason to believe that even kissing on the part of a visitor was permitted in one case with serious result. In the only fatal case antitoxin was used rather late, and the patient in a sense recovered, but succumbed to the secondary effects. In Highweek village also there was a slight case, following a still slighter one that was not notified, a somewhat frequent experience. In Kingskerswell, a prolonged case of bad throat was at length notified as diphtheria, associated also with others in the same house. The drainage of the premises was very defective, and the water unfit for use—see analysis No. 10.

TYPHOID FEVER. The year 1898 has been characterized by an unwonted amount of this disease. The epidemic in Highweek I shall not refer to here, as it cannot be dissociated conveniently from the urban district.

Record of Water Analysis.									
No	Source.	Date.	Grains per Gall.		Parts per 1,000,000			Oxygen taken.	REMARKS.
			Total Solids	Chlorine.	Free Ammonia.	Organic Ammonia.	Nitrogen from Acids.		
1	Proposed Lustleigh supply	Apl. 17	11.0	.9	.02	.04	.016	small	a little vegetable matter; very good.
2	House well, Hele Highweek	Apl. 19	20.0	1.9	.02	.04	...	very small	good.
3	Farm yard well, Hele, Highweek	Apl. 19	...	2.5	.09	.16	...	large	unsafe.
4	Willow Grove spring, Ideford	Jun. 15	13.0	1.2	.2	.08	...	slight	} impurified by masonry; but later improved.
5	Ditto	Jun. 17	...	1.3	.17	.05	...	do.	
6	Well at Higher Sandygate	Sept. 12	...	4.1	.01	.16	...	very large	water milky and deficient; water introduced.
7	Forde Grange	Sept. 17	50.0	3.5	.0	.11	...	large	inferior quality.
8	4 Court well, East Street	Oct. 4	...	3.9	.0	.08	...	large	ditto.
9	Bradley Lane well	Dec. 20	66.0	5.3	.01	.19	...		became infected with Typhoid.
10	Northernhay, Kingskerswell	Nov. 25	...	11.4	0.1	.134	...	large	not safe.

In the report for the latter details are given : essentially it constitutes one picture, not two, and must be so treated. The first case to which my attention was called was in February, at Bovey, in a house two doors from one in which there was also a case last year : in March there was another at the House of Mercy there. This recurrence is the more unpleasant that for many years, a dozen or more, this town has been free from the malady. In Bishopsteignton there were half a dozen cases. The first of these, in March, was at Luton, a village on the confines of the parish ; the patient had occupied a room with a bed-ridden person who was suffering from an offensive chronic diarrhoea. The second was in Orchard Terrace, and might have been contracted elsewhere, but probably not, and from it arose a secondary and fatal case, in an isolated and remote cottage. At the corner near this locality is a large untrapped grid, receiving what is usually a minute rivulet. In the Triangle, and at Vincent Lodge almost a part of it, there were four cases. The drainage of Bishopsteignton requires examination and renewal, especially in the locality just mentioned. At Higher Sandygate there were three cases in two houses, and at Lower Sandygate three in one house, of which one ended fatally : the former were associated with nuisances and defective water, the latter with nuisance only : see analysis No. 6. The large village of Kingsteignton was free from the disease, except that there were two instances in the cottage exactly opposite "the monument." This is the local name applied to the lofty masonry column that encloses a vent shaft at the head of the sewer in Greenhill Lane, the odours from which were described as "something dreadful." It has, however, recently been discovered that the sewer there is bad, without fall, choked considerably, and also that it runs under the Dew Drop Inn, where there has been fatality from fever. This condition is the probable cause of the recurrence of the disease in this locality for years past. It will be remedied at once. There was also a case at Pottery row, which is a quarter of a mile from the village proper, and another in a distant town was suspected to have originated there. That the village itself should have only one house thus affected, and that due to a specific cause of easy removal is a vast change to what occurred there even in very recent years. Two cases at Ogwell Mill in the early Autumn are noteworthy from this fact that the occupant pointing to the pool in the Lemon below his premises, said he had "seen picnickers drinking there this very summer" : their ignorance was indeed their bliss. In December three children in one of the Gas-works cottages, Newton Abbot, were simultaneously attacked : here the cesspit was full to overflowing, and the closet choked. It was emptied in due course, and the contents quietly disposed of by being thrown into the adjacent river Lemon. Isolated cases were observed elsewhere, but need no special mention. Many of the above incidents resulted in local improvements that will be mentioned later on.

SANITARY PROCEDURE. As usual a notable amount of work has been done, or is to be undertaken. As regards sewerage considerable, though quiet, progress has been made in Moreton ; new sewers have been laid in Pound-street, and Back-lane, and tenders have been invited for an extension from Forder-street : new ones also have been constructed in Mill-lane, Chudleigh, at Radway, in Bishopsteignton, also at

Teignmouth-Combe in the same parish, and at Kingsteignton. Besides these, extensions have been made in sundry places, and at Gestridge, Kingsteignton, "flushing pits" have been fixed at sewer ends. Much improvement of kindred type has been made in Mill-lane, Highweek, most of the closets there having been connected with the sewer, instead of emptying into the leat, and certain houses have undergone renovations, especially the group in which there was an outbreak of fever in 1897. Bovey has been house-to-house inspected at the hands of my deputy, Dr. Mapleton. This work has been fully and precisely done, everything visible being carefully tabulated, a great advance on the almost nominal inspections of the past. Copies of the reports have been sent to every owner, not as official notices, but merely that they might know of defects on their property, and not be able to plead ignorance in the future. This has already resulted in a great demand for the services of our assistant inspector ; indeed, he was there no less than three times last week in compliance with the requests of builders, who wanted to know exactly the requirements. This, of course, is not conducive to inspection elsewhere, but it is very important work, as it is permanent in its nature and must be attended to before almost anything else. Water supplies, too, have received consideration. It has been decided to introduce the Torquay water into Kingskerswell : the negotiations to this end are complete, and the sanction of the Local Government Board alone awaited. We are entirely indebted for this advance to the senior representative of the parish, who has pushed it forward with persistence and skill. Many and loud have been the complaints of deficiency of water at Bovey during the autumn drought, giving rise to a demand for storage, but the cost, £4000, has induced hesitation. The supply of Ipplepen, too, has engaged much attention, and for the first time a real and substantive effort has been made to solve this troublesome question. It has not however been successful. The geographical and the geological difficulties are great, but too long to be discussed here. The representative of this parish also is shewing energy in the matter : latterly he has, I think, manifested an inclination to appeal to Torquay, as Kingskerswell has done, but, personally, I have a feeling that the Water-lane locality has not been sufficiently investigated. A new storage reservoir is to be constructed at Bishopsteignton. Lower Sandygate is to be drained, and Upper Sandygate supplied from the public water mains : near these also in the village of Preston, a scattered place, some houses badly need water ; the mains are there. The proposals for

the supply of Lustleigh have not made any definite progress during the year : the schism manifested in relation to this is not to be approved, as this village with the adjacent ones of Brookfield and Wreyland (in Bovey) essentially constitute a sanitary unit that is not divisible. The waste of water that is so common is a serious matter, involving much public expenditure : the leaky tap abounds everywhere and I have seen one running off thousands of gallons daily. The basic remedy for this is the interdiction of sinks underneath them.

I am sorry to say that in many instances reports I have made to the Authority have not received the due consideration that should have been conceded in the public interest : indeed, this has been carried so far that the leading papers of the west of England have spoken of the proceedings as "absurd and farcical," the "Councillors drifting from one subject to another with little more than a laugh and a passing joke." These criticisms, however, have done good. When I reported that the bye-laws concerning the building of new houses were not observed, the statement was hotly contested, and on my proving it with regard to one indisputable item, the diameter of the vent shafts, silence alone followed.

When I stated that the closet and cesspit at Avenue Cottage drained into the often dry bed of the Lemon, it was promptly retorted *ex cathedra* that I had not condemned the house as unfit for habitation. It was accepted as law (without reference to advice), that a nuisance attached to a house involved the condemnation of the whole ; a wide principle that would apply to many important properties on this stream alone. On presenting a written report on the neglected state of this river, a critical assault was the only immediate result.

On November 16th I submitted a written document urging that there be two assistant-inspectors under my control and advising that the bulk of the work of the Authority be handed over to a committee under clause 201 of the Public Health Act, 1875. The first of these suggestions, after six words from a private member, was promptly rejected, the latter entirely unnoticed. Yet this transference of work would probably be an effective remedy to the complete subordination of sanitation to the poor-law, and its partial subordination to road maintenance, that now obtains.

In fact, the captious interjection is too much in evidence and unrestrained, with the result that discussion is less frequent than dispute. Almost at every meeting lately, I have found myself drawn into a contemptible logomachy not conducive to enlightenment.

A very important and far-reaching change was a few months ago introduced at the mere suggestion of a member, I believe without notice of motion or any discussion whatever. This was the addition of the whole parish councils (instead of a representative few, as heretofore) to our local sanitary committees.

This was in effect handing over the work to these local bodies, often mere debating societies, and with the exception of Chudleigh the meeting-time was promptly changed to the evening. Hence, our officers have become rightly discontented, and labour under a sense of oppression in having to do nocturnal work at the dictation of Councils not their employers. The Public Health Act, 1875, is operative only during "reasonable hours," *i.e.*, in the day time : the Parish Councils cannot meet before 7 p.m. That in a district extending over 175 square miles, officers should be compelled to go long distances after dark is obvious inequitable.

How can they be expected to work in the day-time as well as go (even if only to Kingsteignton) many miles at night ; this to be done, too, in all weathers and at all seasons. Moreover, these meetings are numerous, and there is a tendency shewn to monopolize the services of our officers by the process of adjournment, and by assigning them the carrying-out of some small local work that needs repeated visitations. It is too large a subject to pursue further in this short report.

This has led to the resignation of Mr. Segar, the chief inspector, whose duties are almost restricted to the carrying-out of sanitary works. The proposal submitted to the Local Government Board for approval is that an engineer (who will, perhaps, use us as a stepping-stone, and will require costly aid in all emergencies) be employed at a salary of £200, of which the Guardians are to pay about £40. I hold this from the sanitary standpoint to be a retrograde step, and not economical. The new officer will, I am convinced, do no sanitary inspection to speak of, and, financially, the scheme is without merit. Thus, the cost to the public purse will be £200, plus £80 for Mr. Rogers=£280 a year. But as half of the engineer's pay as inspector, *i.e.*, half of £160 will be refunded, the total will be reduced to £200. On the other hand, suppose Mr. Segar have £100 (£50 to be repaid), which, I understand, he is willing to take on conditions, and there be two assistant-inspectors at £80 each, the total cost will be only £210, and there will be three officers instead of two. True, this is an excess of £10, but I would remind the Authority that Mr. Segar's knowledge of the district is complete, and as he has always put the resources of his office at our disposal, the equivalents are enormous.

The truth is, the work is not done, and cannot be done properly under present conditions: indeed, I doubt if less than three assistant-inspectors are sufficient. The Authority itself, is behind its own officers in sanitary earnestness, and even behind the public for whom it works: the principles that animate it are economy, and the expediency of the moment, both no doubt important in their way, but not conducive to progress. If contested elections on hygienic grounds were frequent, this would soon be altered. No doubt a good deal is got through after much and unnecessary perturbation, but this is done by the officers' influence on right-minded people, or by the private member pushing through some work for his own parish. I do not think it an exaggeration to say that the Authority itself does not act in the face of opposition or difficulty, and does not give me any support beyond that involved in the words, "Serve a notice." As these notices are not entered in the minutes, and are not enquired into at subsequent meetings, they mostly serve the useful purpose of a shelf on which matters may quietly rest, until after an indefinite period, the point, perchance, is renewed, and the formula repeated. More than one case of typhoid is due, this very year, to this method.

I have said that the work is not properly done, or on a system. Here are a few points in this association:—(a) Notices are not followed up on expiry: the staff is insufficient for this. (b) Disinfection to all practical purpose scarcely exists. (c) House-to-house inspection is in much the same condition. This is a point of surpassing importance and involves much subsequent work in correspondence, interviews with builders, &c. (d) There is difficulty experienced in inspecting new buildings, and testing of drains is never done. (e) Inspection of dairies. This is, to a large extent, farcical. Many, of course, are registered, but those that are not sell milk without check or hindrance, and that the wells are sometimes questionable is within my knowledge. In one case I submitted a written report about the water, yet nothing was ordered, and the milk is sold to the public to this day. These wells in dirty yards are

usually covered, but should any morbid poison get access, the pabulum would be abundant, and outbreaks of disease follow. (f) Owing to the system in vogue, work has frequently to be done over and over again. See previous paragraph.

Hence, I formally ask for three working inspectors under **my** orders, subject to the corporate control of the Authority. I alone know fully the requirements of the district, and the manner in which the time of the officers is now frittered away by private requests and local suggestions, to the neglect of graver matters, is lamentable.

I think these moderate reforms should be accepted, for the public demands are rapidly increasing: the resistance to reform, the damming back process, was tried by the Guardians, and we know the unfortunate results that followed.

The public look on myself as the head of the sanitary department the Local Government Board also appeals to me, and the Authority itself does the same in the hour of crisis, or under fear of public reprobation, yet I have never been conceded the necessary assistance or the necessary support. One of the best members that the Authority ever contained complimented me with the analogy of "Pegasus harnessed to a plough."

Let me here express my appreciation of the quiet support that is accorded to me by many thoughtful members of the Authority, by many of the public, and by the Press: indeed, it is remarkable how frequently my recommendations, often bitterly and captiously opposed at first, are carried out a few months or so later; it is to the undercurrent of thought that I attribute this. The cleansing of the Lemon is an instance—this is to be done by contract; the proposed enforcement of the building bye-laws another; small sewerage systems in sundry places; the abolition of the cesspit at Avenue Cottage; the improvement in the scavenging of Highweek, &c.; other illustrations of recent date.

At the end of October, by order, I reported on the condition of Cricket-field, Elm, and Western-terraces, with a view to certain specified improvements there: they remain in *statu quo*, however.

On the motion of the vice-chairman, certain parts of the Amendment Act, 1890, have been adopted. I had advised this with a view to the abolition of hand-flushed closets in our towns. The necessary bye-laws have not yet been considered.

There are serious defects in the water supply of the houses and quarry at Stoneycombe. I mention this matter as there was an outbreak of typhoid fever there in my predecessor's time, in which there were 9 cases with 3 deaths. As the conditions have not been essentially altered, this is liable to recur, and the people there are to that extent living on the brink of an abyss. It will, I believe, be remedied by the construction of a filter bed.

Messrs. Segar and Rogers report the following, besides those previously mentioned, in their department:—

In Moreton, Mr. Crump's cottages partly improved, as required; extension of water main to Mr. Gurney's in Bovey; branch sewer from

Crook's corner to Collings' orchard in Chudleigh. In Kingsteignton, new sewers below Church-road, and in the road to the Vicarage. Numerous connections with the water mains. At Whilborough, concrete gutters have been made. In Highweek, various connections with main sewer, Orchard-terrace, Halcyon-place, Stockman's and Pinsent's cottages; vent shafts and inspection chambers in the village, and on the main sewer; renewal of the drainage, &c., of Seven Stars Hotel. Notices served for ordinary nuisances 42, of which 29 have been complied with. Houses unfit for habitation 8, of which 6 have been made tenantable, one rebuilt and one believed to be vacated. Nine wells have been closed in Mill-lane, Bradley lane (3), Highweek village, Ipplepen, Ideford, Coombe, Sandygate, and beyond Mile end. About 60 new w.c.'s have been constructed, chiefly in Highweek, Moreton, Cockwood, and Kingsteignton. The arrangements at the British Schools, both in Bovey and Kingsteignton, have been greatly improved. Five cases of over-crowding. Many complaints of nuisance have been abated without official notices.



NEWTON ABBOT (URBAN).



The number of deaths registered during 1898 was 162, of which 85 were in males, and 77 in females, giving the annual rate of 16·46 per 1000 of population. The latter is estimated at 9,850, but not improbably is in excess of this figure, as the growth of the town is rapid, and further building is projected. Considering that the measles epidemic has fallen in this year (it now recurs every $3\frac{1}{2}$ years), that there has been an exceptional mortality from diarrrhœal diseases, as was as some recrudescence of the influenza, and that a rebound from the exceedingly low rate of 1897 (10·2 per 1000, the least of the 55 sanitary districts of Devon) might be expected, the figure is satisfactory. It is in fact the smallest ever reached in a measles year.

The mortality in the four quarters was consecutively 42, 25, 42 and 53. Other chief causes, omitting those given in the table were constitutional diseases, not including phthisis and tubercle, 9 deaths, of which 6 were due to cancer, and 2 to acute rheumatism—diseases of the nervous system 23, of which 10 were from apoplexy, and 6 from convulsions—of the digestive organs 11, including 3 under the name of gastro-enteritis, and of the kidneys 4. Ten were attributed to old age ; 6 to premature birth, an unusually high figure, and 4 to infantile inanition.

Under the age of one year, there were 37 deaths ; between 1 and 5 years, 20 ; between 5 and 15 years, 3 ; between 15 and 25 years, 14 ; from 25 to 35 years, 9 ; in succeeding decades and periods of age 12, 5, 7 ; and over the age of 60 years, 55.

The infantile death-rate, those under one year to every 1000 births, reached the high figure of 163. This was due to the measles epidemic in association with fewer births than usual.

The births were only 227, actually 14 less than in 1897, equal to a rate of 23·05 per 1000, the lowest ever reached except in 1887, when it was 20·6. Allowing for the 11 inhabi-

	1898	1897	1896	1895	1894	1893	1892	1891
Smallpox ... ..	...	...	...	...	...	...	...	...
Measles	13	...	...	5	...	...	1	13
Scarlatina ... ..	...	...	...	2	...	1	1	...
Whooping Cough ..	1	1	1	3	16	2	1	...
Diphtheria ... ..	...	...	...	1	2	3	...	4
Continued Fevers ...	9	...	1	2	...	1	1	...
Diarrhoea	7	4	3	...	...	5	2	...
Deaths from 7 chief								
Zymotics }	30	5	5	13	18	12	6	17
Phthisis	12	9	13	11	12	13	7	4
Others Tubercular ...	5	3	3	6	4	3	1	3
Bronchitis, Pneumonia, &c. ...	16	13	15	27	27	26	23	25
Heart Disease... ..	14	14	17	12	9	10	14	26
Violence	2	4	7	5	1	4	3	4
Other Diseases,	83	51	77	87	76	71	79	65
TOTAL FOR EACH YEAR. ...	162	99	137	161	147	139	133	144
General Death-rate per 1,000 ..	16·5	10·2	14·3	17·5	16·1	15·9	15·3	16·7
Zymotic Death-rate	3·1	·5	·5	1·4	2·0	1·4	·7	2·0
Birth-rate	23·0	24·8	25·5	26·8	27·2	26·9	26·0	25·2
Deaths under 1 yr to 1000 births	163	120	102	126	157	147	116	121

tants of the town who died in the Workhouse, the natural increase was only 54,

In this institution, situated in Newton, there were 66 deaths ; 37 in males, and 29 in females. Their local origin was as follows—Torquay 28, Newton 11, Teignmouth 7, St. Marychurch 2, Dawlish 4, and the rural parishes, 14.

ZYMOTIC DISEASES. Thirty deaths were due to the ordinary seven diseases thus grouped—13 to measles, 9 from typhoid fever, 1 from whooping cough, and 7 from diarrhœa, and from these alone, the rate is 3·0. Besides these, there were 4 deaths from influenza, and one each certified as erysipelas and septicœmia. The epidemic of measles formerly occurred every 4 years, and always in November, but the growth of the town has now shortened this to $3\frac{1}{2}$ years. It being towards the end of the fourth quarter when it broke out, I fully expected to lose 20 children from it, but the winds were happily from the south, and a brief card of instructions which I published for the information of mothers may have had some effect. That it was appreciated by many of them, I know : it was simply practical, all the cumbersome details of disinfection, which have so special relation to measles, being carefully avoided. The whooping cough being chiefly in the summer, did not do much damage. The chief character of the year has been an excess of typhoid fever and diarrhœa, greater than ever before in my experience of the town.

This point demands a special description and explanation. The tables appended relating to it are simplified as much as possible, and rendered easily intelligible. Necessarily the account must be brief.

An examination of the 37 cases in Newton itself shews that Nos. 7 to 9 dated their illness from the Volunteer camp ; those numbered from 11 to 16 were due to importation ; No. 12 is to be specially noted, he having come to his home from Cornwall in consequence of illness, and so conveyed it to his brethren. This was not in the town and had no connection with its drains, sewers, or water supply. The same applies to 20 and 21 ; they also were not in the town, and infection here played a part too. Nos. 22 and 16 in the Highweek list, both big lads, were due to river bathing. The very high temperatures of September encouraged this amusement. They were intensely severe cases, both alike, beginning with a tongue almost black, such as is rarely seen before the third week of bad attacks, and dying hopelessly at an early stage. It appeared to me that they had swallowed some of the sewage-laden water and that the disease began in the stomach, or very high in the digestive canal. One or two other affected children were also in the habit of paddling and fishing for

Cases of typhoid in Wolborough and Highweek after
Midsummer, arranged in groups and not according
to strict order of occurrence.

No	Date.	Locality.	Probable Cause.
1	July 1	Wolborough Street	local : an ordinary case
2	Sept. 8	same house	infection from No. 1
3	" 19	Powderham Road	ices from No. 1 ; drain defect
4	" 19	Church Path	ices from No. 1 also suspected
5	Aug. 4	Osborne Street	local defects
6	" 6	East Street	autogenesis
7	" 23	Wolborough Street	from Volunteer Camp at Roborough
8	" 30	Beaumont Road	do.
9	Sept. 14	East Street	do.
10	Aug. 25	Market Street	local : an ordinary case
11	" 30	Queen Street	imported
12	" 30	Rural : not on town sewerage and water systems	imported, brought home on account of illness
13	Nov. 17	same house	infection
14	" 17	same house	infection
15	Oct. 5	Queen Street	imported
16	" 24	Wolborough Street	imported from rural Highweek
17	Sept. 19	Queen Street	superintendence of drainage : perhaps importation
18	" 12	Station	an exceptional and singular case
19	" 17	St. John Street	local : an ordinary case
20	" 20	See No. 12 above	drainage not satisfactory
21	Oct. 6	same house	infection
22	Sept. 28	East Street	river bathing : see also No. 17, 16
23	Oct. 13	Queen Street	Highweek clearly shell-fish eating
24	" 6	Queen Street	local : an ordinary case
25	" 12	Osborne Street	local
26	" 20	Courtenay Street	{ infected milk } No. 2, Highweek, ditto. originated in another ad- joining house.
27	" 24	next door	
28	" 24	East Street	suspected milk
29	" 24	same house	do.
30	Nov. 1	same house.	do.
31	Oct. 25	Prospect Place	infected milk
32	" 29	Albert Place	do.
33	Nov. 4	Grove	suspected milk
34	" 17	Gladstone Place	infected milk
35	" 17	same house	do.
36	Dec. 8	Devon Square	a detached case : drains suspected
37	" 21	Nurse at Isolation Hospital	infection from patients

No	Date.	Locality.	Probable Cause.
1	July 30	Highweek Street	serious defects on premises, previously known, and remedy refused; yet notice served and despised.
2	Sept. 15	Bradley	<i>source of milk infection</i> - see 26, 27, Wolborough
3	Oct. 25	same house	<i>infected milk</i>
4	" 27	do.	<i>do.</i>
5	Nov. 1	Bradley	<i>do.</i>
6	" 8	do.	<i>do.</i>
7	" 19	Bradley Lane	<i>do.</i> from Bradley
8	Dec. 23	same house	infected water supply
9	" 23	do.	<i>do.</i>
10	" 27	do.	<i>do.</i>
11	" 27	Bradley Lane	<i>do.</i>
12	Sept. 24	Exeter Road	<i>infected milk</i>
13	" 26	Western Terrace	<i>do.</i>
14	" 26	same house	<i>do.</i>
15	" 27	next house	<i>do.</i>
16	Oct. 6	Avenue Cottage	river bathing: 'see 22, Wolboro'
17	" 22	Highweek Road	<i>infected milk</i>
18	" 24	Exeter Road	<i>do.</i>
19	" 25	Bradley Lane	exceptional case, ill a long time: died 2½ months later
20	" 28	do.	<i>infected milk</i>
21	" 28	Little Bradley	drinking infected leat water
22	" 31	Highweek Street	<i>infected milk</i>
23	" 31	same house	<i>do.</i>
24	" 31	Highweek Village	<i>do.</i> removed from the Avenue
25	Dec. 17	Bradley Lane	infected water supply
26	" 27	do.	<i>do.</i>

In addition to these there were some mild cases, not notified, but probably of the same nature: the earlier were associated with the infected milk, and the later with the infected water. Moreover, there were two cases in Ashburton associated with the suspected, not the infected milk: observe the distinction.

minnows, but not bathing. Nos. 26 and 27 were due to infected milk, as also were 31, 32, 34 and 35. No. 36 was a late and detached case (drains suspected), and No. 18 was exceptional in that the person was doing her work until intestinal hæmorrhage and death a day or two later supervened. The last case, No. 37, was, of course, due to infection at the isolation hospital.

One I have ventured to assign to autogenesis, having had much previous acquaintance therewith. Nos. 28, 29, 30, were possibly due to a milk that I suspected; it came from a place having an impure well, the use of which I promptly forbade under all conditions. The shell-fish case, No. 23, seems a clear one, and is instructive: it is bracketed with the river cases for obvious reasons. Its history is this: two visitors from London staying in Highweek in company with a tradesman from the distant end of Queen-street, went to a well-known river bank hostelry to enjoy the popular and annual function of a meal of cockles. The tradesman, and the younger of the two from London, underwent attacks of typhoid, beginning within a day of each other, both curiously enough followed by paralysis of one arm; the other only suffered from a severe and immediate diarrhœal attack: the visitor had returned to town.

Excluding the important cases, those due to milk, infected and suspected, the river-bathing ones in September, those entirely rural, the nurse from the isolation hospital, and the shell fish case, there remain about 12 which the town itself may consider as its own, and it is remarkable that the majority of these were of the type that obtains in other years. This number, however, is not greatly in excess of the average, and even in this infection had some share. Indeed, I think the disease is developing more infectivity than formerly, and is either changing its type or is another malady. The numbers of the last, the local cases, in the table are 1 to 4 which are grouped, 5, 6, 10, 17 to 19, 24 and 36.

On passing to the Highweek list it will at once be seen that those due to the infected milk are very numerous, for it was sold there chiefly, and inasmuch as the poisoning of the water in Bradley-lane was its secondary effect, those due to the latter may also be assigned to the milk. There is not a single unexplained case in the whole list.

Thus, No. 1, the early case in July, Nos. 2, 19 and 21, are alone dissociated from the milk and the water supply of the above named cottages. A sentence may be devoted to each. No. 1 was in a house in which was a case in the previous year; it had pronounced defects, but the notice then served was not obeyed or pressed home. No. 19 was a very exceptional case of prolonged illness. No. 21 was due to drinking from the infected leat. It is remarkable that in every case not due to the milk, some other obvious cause was in operation. I have left No. 2 until last.

This was the important case, from which the secondary ones arose, and from these again the water became infected. The history of this and the resulting outbreak (see also 26 and 27, Newton list) is as follows:—A young woman, whilst serving in a shop in the town, but going home to sleep, was notified as suffering from typhoid, and other cases (2 to 6) occurred in sequence amongst her family and neighbours on the estate, between whom communication was frequent. At this time I began to observe that a certain dairy had a marked preponderance of cases, a peculiarity that soon became decided, and in several streets the only house it served shewed the disease. I did not, however, adopt the severe course of closing the dairy, as this would imply temporary ruin, but took measures not only to insure the milk being boiled, but forbade the owner buying any from the source I then suspected, and also interdicted the latter from selling it.

Here it is only right to say that the farm in question has the best and cleanest dairy I have ever inspected. I had issued notes of warning before, but not being sure did not use the absolute veto until November 11th. *From this date there was a sudden cessation of the disease in both localities*, for I had seen cases Nos. 34 and 35 on the urban list (dated November 17th) before this time, they having been mentioned to me as "suspicious" on November 7th; and a reference to the Highweek list will shew that there were no notifications after November 11th, the day the milk was finally forbidden, until those due to the infected water began to pour in, all from Bradley-lane after the middle of December. (No. 7 looks like an exception to this, but it is clearly the reverse, for this young man worked at the source of the milk, often entered the infected houses there, and was actually ill on the identical date, November 11th). The condition of things in this long row of houses was then alarming, for in several of them children had actually begun to develop the fever, and were in bed. With the cordial assistance of the owners, I caused the pump-handles to be removed, a water-cart to be called into requisition, and elicited a ready promise that the public water supply should be forthwith introduced. *From that hour no cases were notified: this was the second sudden cessation of the disease on withdrawal of the cause.* This gives rise to a very important question of special interest to the medical profession. Assuming these were true typhoid fever, and also that this disease has a period of incubation, why this sudden cessation? Why did not the incubating cases develop to be notified one, two, or three weeks later? Let me give a suggestion by way of reply: can it be that the *bacillus coli communis* has under a continuance of favoring conditions the ability to adorn itself with a few additional cilia, glorify itself into its congener, the typhoid bacillus, and acquire pathogenic powers?

I have asked why I did not stop the milk sooner, an easy question. In the first place, the original case was not in the same house with the milk, but only in an adjacent cottage on the farm; again, I am naturally not so alarmist as the public, and have moreover to be convinced, even to proving my case in a court of law, for actions lie against me, not against the Authorities I serve: indeed, I have been threatened with several.

Thus, the story of the outbreak resolves itself into a number of cases from the various causes mentioned, mingled with those of a mild and ordinary type such as occur every autumn in some degree, until at length a milk supply became infected and, finally, in one locality only, a water supply also. This history largely acquits the town; its water is above suspicion as a cause, being the same as that of Torquay (where was no exceptional typhoid), and, although I believe the drainage of houses to be more in fault than the public sewers, yet it is to be remembered that the heat of August and September was intense, the drought prolonged, and the main streets from the top of Wolborough-street to the outfall, almost level, only a few feet above the highest tides, all natural factors not easy to counteract: it may be added in this association, the original cases were, as usual, mostly on this level part.

Even this small epidemic has not been without its lessons, and its resulting improvements.

As to the lessons. Omitting the important one involved in the shell-fish cases, these are:—(a) The simple one of boiling the domestic milk supply, especially during summer and autumn. The point of boiling need only be just reached, not prolonged. (b) The danger of sinks and

drains close to wells. At the rear of the houses in Bradley-lane was a long narrow passage, (with good rubble paving, having recesses here and there containing wells and closets), serving the purpose of a general courtyard. Underneath the spouts of the pumps were small stone troughs, and beyond these the grids which received waste water, and served also as sinks. Thus, the common sewer must be very near to and the sinks actually on the brink of the wells. The sinks, too, were of iron, which never fit closely into pipes. The moral is that the overflow of pumps should be conveyed a little distance in a properly made gutter before entering any sewer connection. (c) The people there, no doubt honestly, claimed to have buried the infectious discharges in their gardens. Admitting this to be entirely true, that the closets were never used for the purpose, that there was no carelessness shewn under any circumstances whatever, even at night, yet I hold it to be a complete and dangerous delusion. Let us examine the conditions. Behind the narrow courtyard (say 6 feet in breadth) were flights of steps leading to very steep gardens. Now an utensil, after being emptied in the ordinary sense, would require swilling out at least half a dozen times to render it in any respectable degree clean and free from infectious material. How was this done? Was the pump resorted to six times, the utensil carried up the steps and the steep garden six times, and the water in it buried beneath the surface six times? Obviously not; the pump and the iron sink beneath it were of course resorted to. Besides, there is the question of washing soiled linen; was the large quantity of water used in this process also buried? Yet from the disease-producing point of view the omission of all this would permit the entrance of vast quantities of the poison to sinks and drains. In truth, the subtlety of this infection has not yet dawned on the public mind.

As to the improvements. Sanitary disasters, creating public convictions are always followed by these, and in a sense are blessings in disguise. In this instance the improvements are rather numerous. A real effort has, for the first time, been made to purify the Lemon and its leat, to prevent their use as public sewers: in the town these endeavours are moderately not wholly complete, but above the town in the rural part are nothing. That Bradley-lane cottages will be supplied with water, the wells closed and the closets flushed is in itself an important advance, affecting about 30 houses. Again, some excellent sewer regeneration has resulted in the town, and in Highweek also has received an impetus—see Mr. Stevens' report on page 24. An isolation hospital has been hastened, and lastly, the lesson involved to milk-sellers, to Authorities, and to the local public, is valuable.

The Isolation Hospital is at present a solitary house, originally at a toll-gate, about one-third of a mile from the town. The intention of the Committee is to acquire the adjacent field, and erect a sufficient building.

I have recently advised the Urban Council to warn milk distributors that they sell only the product of their own cows or never buy from unregistered rural sources. I have not yet heard that any active steps have been taken to this end.

The complete renovation of the sewer system has been suggested. This has to a large extent been already done. No

doubt much remains to be effected, and I look with suspicion on the main which has been bent downward by the weight of the railway embankment, and partakes therefore of the nature of an inverted syphon. This sewer is very long and flat, a geographical condition that cannot be altered, and requires a vast deal of cleaning annually, as every storm brings down silt from the steep hills. I do not think the time is quite opportune for any radical change, as important official enquiries are impending that may lead to revelations. My own view is that our Surveyor, in whom all have confidence, prepare plans that should subsequently be submitted to consultative authority. Besides, there is plenty of architectural knowledge on the Council available in this matter. I am totally opposed to any outsider being called in to do the work *ab initio*: this would involve immense expense, and Devon itself affords strong examples of the folly of this course.

In association with the outbreak, there are two points worthy of mention: (a) it was alleged, I believe, from some medical source unknown to me, that teetotallers were the worst sufferers; my experience was emphatically the reverse. (b) it would be better to clean the town reservoir earlier in the year, say March or April, than defer the process until the hot months set in.

The house-to-house inspection, undertaken by my deputy, Dr. H. B. Mapleton, has made progress. A few details, the outcome of it are given in Mr. L. Stevens's abstract on page 24. It has already resulted in the discovery of much bad drainage, and involved considerable work. Here, however, it is to be noted that this was to be expected as Wolborough Street the oldest part of the town is the locality concerned.

The long-promised improvements in 10 Court, East Street, under the Street Works Act, and those long talked of in 6 Court, Wolborough Street, have not yet been realized. In Snelling's Court, in the latter locality the introduction of town water, and the erection of modern closets are proceeding.

A magisterial decision has been obtained condemning 9 Court, Wolborough Street, as unfit for habitation, under present conditions; here too matters are at a standstill. The Council has waited for the owners to agree amongst themselves on the pecuniary conditions, an apparently hopeless expectation on the part of a minority of them.

I have advised the Council in conjunction with High-week to take measures for the suppression of the hand-flushed

closet nuisance, and also to construct back roads in certain parts to give access to the scavenger. Some of the places thus concealed from view are very offensive.

I have had occasion to remonstrate on a class of houses being built without windows that open in the staircase, by which they may be ventilated ; a very desirable provision at all times, but especially when there is infectious disease in the premises.

No houses are now allowed to be occupied unless sanitarily inspected, and duly approved by the Surveyor. This step has evolved in the minds of builders a resolution "not to be caught napping again."

Mr. L. Stevens, surveyor and inspector, reports the following in his department :

In East-street 250 feet of old sewer has been replaced by 9, 8 and 7 inch socket pipes, extending from the schools to No. 125. In Osborne-street from Nos. 36 to 68 a similar work has been done with a greatly improved fall : the latter has been attained by raising the closets, by which a gain of 12 inches in 300 feet has accrued : the yards at the rear of these have also been raised, and paved with bricks ; 18 closets here too have been introduced. From Pear Tree Place 230 feet of 9-inch pipe at an even gradient have been laid, and the sewer at the back of 12 and 14, East-street, renewed. In Bank-street, 100 feet of 9-inch has been substituted for an old stone sewer. To all these the necessary manholes, inspection chambers and vent shafts have been appended, and in many instances the associated house drains renewed.

The usual work of cleansing the large sewers by dredging has been done. The length thus treated was nearly 4,000 feet from Albany-street to the outlet : it implies the removal of debris amounting to hundreds of cartloads.

The house-to-house inspection, as yet including only Wolborough-street and its purlieus, has been followed by the application of the smoke test to drains in 66 instances with very striking results ; in 21, serious defects were found, and the drains and connections made good ; in 13 others they were so bad as to need complete renewal with socket pipes, the w.c.'s and fittings being new also ; 16 were satisfactory so far as could be seen. The remainder refer to the drains of new houses or to renewed drains, and these also were mostly defective.

The courts and gullies in the streets have been systematically flushed and disinfected, especially during the summer.

The ordinary inspections of the town have been followed by the serving of 44 notices : 19 referring to foul closets, 8 to poultry, and 6 to manure nuisances, the remainder to defects on premises, offensive stables, and one removal of swine.



DAWLISH.

The number of deaths in the Urban part of Dawlish during 1898, was 73, of which 31 were in males, and 42 in females, yielding an annual rate of 16·5 per 1000 of people. It is satisfactory to observe the diminished rate of the last few years has thus been maintained, for this is much below the decennial average, and follows the best year on record : in the intercensal period 1881 to 1890, it was 18·26. The habitually low birth-rate in the town, its slow growth, and the number of residential invalids are not factors in the production of a low rate, and I doubt if it will descend further. Excluding 12 visitors, the figure sinks to 13·7. The return of the influenza has added to the mortality. In the successive quarters of the year there were 22, 18, 20 and 13 fatalities.

Under the age of 1 year there were 11 deaths ; between 1 and 5 years, none ; in the following decades to the 55th year, 2, 7, 3, 4 and 5 ; between 55 and 60 years, one only ; and above the latter age, 40, more than half the total as in the preceding year.

Omitting those shewn in the appended table the chief causes of mortality were cancer, 5 deaths ; diseases of the nervous system, 8, of which 6 were due to apoplexy ; of the digestive organs, 4 ; of the respiratory, 6. Four were assigned to old age, 2 to premature birth ; 2 to infantile inanition ; and one each to alcoholism and to accident.

The infantile death-rate, that under 1 year calculated on every 1000 births, was 108, a rather lower figure than in recent annual reports.

The births of 47 boys and 55 girls give the rate of 23·0 per 1000, a low figure, but higher than has been obtained for years ; considering however that in the previous year the lowest record was reached, the rebound, the tendency to a better average, is not pronounced.

The natural increase of population, the excess of births over deaths, was therefore only 29, and even this should further

	1898	1897	1896	1895	1894	1893	1892	1891
Smallpox ... ..	...	...	...	...	...	...	...	...
Measles ... ..	...	1	...	...	...	...	1	...
Scarlatina ... ..	...	...	...	...	...	...	...	...
Whooping Cough ... ..	...	...	3	...	2	...	...	...
Diphtheria ... ..	...	...	...	...	...	1	1	...
Continued Fevers ... ..	...	...	...	...	...	...	...	...
Diarrhœa	2	1	...	...	...	...	1	...
<i>Deaths from 7 chief Zymotics</i> }	2	2	3	..	2	1	3	...
Phthisis	6	2	6	8	5	7	6	8
Others Tubercular ... ..	...	1	4	1	6	2	...	2
Bronchitis, Pneumonia, &c....	12	5	9	10	10	19	12	8
Heart Disease	14	8	11	5	4	12	7	12
Violence	2	2	1	5	4	5	5	2
Other Diseases	37	45	37	42	37	35	40	39
TOTAL FOR EACH YEAR	73	65	71	71	68	81	73	71
General Death-rate per 1,000	16·5	14·8	16·3	16·4	15·7	18·9	17·2	16·8
Ditto (excluding visitors) ...	13·7	12·0	15·4	14·0	14·1	17·0	13·2	14·1
Zymotic death-rate	·4	·4	·7	nil	·5	·2	·7	nil
Birth Rate	23·0	15·7	22·7	19·1	18·5	26·6	24·7	23·1
Deaths under 1 yr to 1000 births	108	116	141	16	162	96	94	51

be reduced by four, who died in the Union house ; some of these however, might have come from rural Dawlish.

ZYMOTIC DISEASES. The seven ordinary diseases usually classed in this group are represented only by the loss of two infants from diarrhœa ; these alone give a rate of $\cdot 4$ per 1000. There were also three deaths from influenza. The notifications included one diphtheria, and eight typhoid. The former was in a new house, and was considered by the patient herself to have originated in the effluvium of an open sewer in another locality ; that it had an external source is to some extent confirmed by the complete absence of anything of the kind among the other young people comprised in the household.

The cases of typhoid fever were so exceptional in number as to need a few special remarks as to their causation. Two of them, however, came from a distance, and in this connection may be eliminated. All were associated with drains more or less distinctly ; one boy that was effected worked in a cellar in which was a dirty closet, having the head of its "syphon" broken off, so that the sewer discharged its vapours into the room. Incidentally it may be remarked that an example is here shewn of the places where the delicacies of our portable and roadside restaurants are sometimes made—the speciality in this case was ices. A man (who happened to be the scavenger) and his two children were affected ; in the adjoining courtyard, the drains and closet were undergoing renewal, and the ground was, I thought, open an unnecessary time. One lady attributed her illness to the odour arising from the then imperfectly sealed inspection shafts of the new sewer in Brunswick Place ; this induced vomiting, and ultimately she had a narrow escape with life. No case was dissociated from sewers and drains. The lessons are that in case of renewal and repairs of these structures, families should if possible temporarily abandon their houses, that the winter is the best time for such work, that unnecessary delay in completion should be vigorously resisted, and that ventilation of sewers at ground level is dangerous.

The construction of the sewer above mentioned in Brunswick Place has completed the modernization of the whole system of the town, except in minor particulars. It was found impossible to obtain people's consent to the affixing of vent shafts against their premises, and it is therefore practically unventilated. With, I believe, only two exceptions, all the house connections were defective, or in some way objectionable ; they were mostly made good. The house-to-house inspection has been completed by Dr. H. B. Mapleton, and a copy of the result sent to every owner, not in the form of a notice to amend (this was reserved for the worst), but in order that ignorance may not be pleaded in the future ; it has already resulted in a small harvest of improvements. The importance of this work cannot be overestimated, and it is pleasant to add that it was everywhere met with cordial approval, the fullest welcome being given to the inspecting officers by all occupants

without exception. The question of an Isolation Hospital has for the time sunk into abeyance ; some of the above cases of fever were received into the new infirmary, which contained plenty of room for segregation, and this action has naturally tended to make the question subside.

An inclination has however manifested itself in the Council to look with favour on the erection of a public abattoir ; and I think this will culminate in action at no distant date. Certainly the slaughter-houses on the hill outside the town are not in a satisfactory condition. An attempt to economize the water supply by a low-level pipe and reservoir, has received approval ; this will not only effect a saving by diminishing the present high pressure, but will have the effect of bringing home more of the available water. Certainly it seems impossible to induce the public to exhibit any virtue in regard to economy of water ; in gardens, even hoses were used to wash the dust from trees and shrubs, a strain difficult to meet however large the supply. The Council is however very desirous of avoiding all restrictions in this matter, although fairly entitled to do so when such wanton waste is incurred. The bye-laws are antique, and should be modernized ; in this association the suppression of the hand flushed closets, slop closets as they are locally called, should be undertaken. Thus at all events several points referred in the report to the Local Government Board by its Inspector, Dr. Reece, in 1894, have received attention, and no doubt in due time others will also.

Mr. J. S. Delbridge, Surveyor and Inspector, reports the following in his department :

The low-level water main has been laid from the junction at Hounds-pool to the town, a total length of 2,735 yards of 5-inch pipe. This has already improved the water service by increasing the delivery. The contract for this work was £853.

The new sewerage constructed extends practically the whole length of the town from the railway, via Brunswick Place, Brook Street, Manor Hill, and Old Town Street, to Church Street. New sewers have also been laid in a portion of Park Street and Exeter road, from the top of Iddlesleigh Terrace to Piermont Place. The total number of yards is 1262, of which 812 are 12-inch and 450 9-inch ; man holes 22 and lamp holes 7 ; associated house connections 154. The drains along the route were smoke-tested, and defects remedied.

In association with the typhoid or with the house-to-house inspection, a number of improvements have been effected. In several instances these affects blocks of property—at Haldon Terrace the old dust holes have been built up and destroyed ; in Commercial Road, the defective drains at the back of houses have been newly laid, and several properties belonging to one considerable owner have undergone improvement. Twenty-eight visits to slaughter-houses, bake-houses, and dairies.